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(54) **DISCRETE SAMPLE INTRODUCTION MODULE (DSIM) FOR GAS ANALYSIS BY LASER ABSORPTION SPECTROSCOPY**

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(57) **ABSTRACT**

A Discrete Sample Introduction Module (DSIM) apparatus includes an internal tubing system to receive into the DSIM apparatus a discrete gas sample having a received concentration. A plurality of valves selectively partitions the internal tubing system to form a plurality of loops corresponding to a plurality of loop volumes to contain the discrete gas sample. The plurality of loop volumes receives a carrier gas to dilute the discrete gas sample to a plurality of preselected dilutions. The DSIM apparatus circulates a given one of the plurality of preselected dilutions for analysis by a spectrometer coupled to the DSIM apparatus.